REMARKS

Support for the above amendments can be found, for example, in the second full paragraph on page 5, the fourth full paragraph on page 10 and the last full paragraph on page 12 of the instant specification teaching single copolymer chains attached to a surface, by a terminus of the copolymer chain, wherein the copolymer chain interacts with a sample or a probe molecule. Other of the claim changes are to address non-substantive language and formal issues. Hence, no issue of new matter is raised and entry of the amendments is requested respectfully.

I. In item No. 5 on page 3 of the Office Action, claims 12-14 and 24 remain rejected under 35 U.S.C. § 103(a) over the Coté et al. patent, U.S. Patent No. 6,485,703, in view of the DiCosmo et al. patent, U.S. Patent No. 6,132,765.

The rejection is traversed for the following reasons.

The '703 patent relates to hydrogels, which as known in the art, are interpenetrating networks of molecules that, by virtue of the three-dimensional network of molecules, are able to entrap fluids therein, hence, the name, hydrogel. For example, column 17, line 48 of the '703 patent teaches, "The polymers used are made from cross-linked hydrogels..."

On the other hand, the instant invention relates to copolymer chains synthesized from and at a surface. The copolymer chains themselves are not cross-linked hydrogels but are single chain molecules attached to the surface and bearing reactive groups either for polymerization or for interacting with a sample or probe molecule. Moreover, polymerization occurs after the initiators are affixed to the surface, as provided in the ordered steps of the claimed invention.

The Examiner referred to Example 2 of the '703 patent. There, the '703 patent clearly teaches a network, see column 40, lines 56 and 57. The network had a thickness of about 100 μm, column 41, lines 54 and 55.

Hence, the '703 patent teaches molecules of a configuration distinct from the copolymer chains of the instant invention.

Also, Example 2 of the '703 patent relates to the use of a photoinitiator. A photoinitiator is not a component of the polymer but is merely a reactive compound which stimulates polymerization. For example, Coté et al. use dimethoxyphenyl acetophenone (DMPA) as a polymerization initiator, and there is clearly no monolayer of DPMA immobilized on a surface in

Example 2 (or elsewhere in the '703 patent) before a polymerization reaction is carried out. Rather, Example 2 of the '703 patent teaches applying a solution of the reactants, including the initiator, to a surface (cf. col. 41, lines 42-45). Then, the polymerization reaction is started in a random fashion (for example, with regard to the position of the initiator relative to the surface). That is in distinction from the method according to the present invention where there is an ordered use of reactants, namely, the initiating molecule is placed first on the surface. The initiator molecule of interest is a component of the final copolymer chain, it is the site through which the copolymer attaches to the surface.

The '703 patent does not teach or suggest the initiator molecules of the instant invention and having same attached to a surface prior to polymerization.

Thus, at least two differences exist between the instant invention and the teaching of Coté et al. The first is that the polymerization initiator molecules according to the invention have a functional group for linkage to a surface (which they do not have in the context of Coté et al.) and second, the process claims of the instant invention require immobilization of a monolayer of the initiator molecules prior to ensuing polymerization reactions. Both of those aspects are not found in or suggested by the '703 patent. Clearly, the '703 patent neither teaches nor suggests the invention as claimed.

The '765 patent relates to liposomes within a hydrogel. Again, a hydrogel, such as gelatin, is a cross-linked interpenetrating network of molecules that defines a three-dimensional structure that can entrap liquid. Moreover, the '765 patent teaches adhering the hydrogel (which in fact is not a monolayer but a non-structured assembly of polymer chains) to the surface, see Col. 4, lines 4-8. Clearly, polymerization must occur prior to attachment of the hydrogel to a surface, in distinction from the instant method where polymerization occurs following attachment of an initiator molecule to the surface, and attachment of a monomer/comonomer to the initiator molecule.

The section referred to by the Examiner in column 5 of the '765 patent does not support the conclusion that the '765 patent relates to or suggests the instant invention. The liposomes are mixed with a hydrogel. That is different from in situ polymerization of copolymer chains at a surface, as claimed in the instant invention. Instead, the hydrogel of the '756 patent is made, that is, polymerization is completed to include the liposomes, and then the matrix hydrogel is bound

to a preformed polymeric surface, which is the medical device of interest of the '756 patent, such as a silicone rubber catheter, column 5, lines 15 and 16 of the '765 patent. Clearly, the '765 patent teaches the hydrogel containing the liposomes is then attached to the device.

As both references relate to hydrogels, neither reference teaches or suggests making single chains of copolymers attached to and synthesized at a surface. Hydrogels are structurally different, being three dimensional networks or matrices, from the essentially linear, individual polyfunctional copolymer chains of interest. Neither of the cited references teaches or suggests the claimed method of interest using the reagents of interest to obtain the surface comprising reactive copolymer chains of interest. Moreover, at best, the combination of the '703 and '765 patents could be interpreted to teach polymerizing the reactants and then adding the polymerized network to a surface. That is not what is claimed in the instant invention.

Accordingly, a prime facie case of obviousness has not been made and withdrawal of the rejection is in order.

CONCLUSION

Applicants respectfully submit that the claims are in condition for allowance. Reexamination, reconsideration, withdrawal of the rejection and early indication of allowance are requested respectfully. Should the Examiner believe that an interview would advance the prosecution of this application, the Examiner is invited to contact the undersigned at the exchange noted below.

Respectfully submitted,

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